REMARKS

Status Of Application

Claims 1-9 are pending in the application; the status of the claims is as follows:

Claims 1-9 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention.

Claims 1, 4, and 6-9 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,738,701 to Ikeuchi ("Ikeuchi") and U.S. Application Publication No. US 2002/0053223 to Nishikawa ("Nishikawa") in view of U.S. Patent No. 3,900,328 to Parsons et al. ("Parsons").

Claims 2 and 3 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Ikeuchi and Nishikawa in view of Parsons, as applied to claim 1 above, and further in view of Japanese Publication No. 60-171231 to Shimizu et al. ("Shimizu et al.").

Claim 5 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Ikeuchi and Nishikawa in view of Parsons, as applied to claim 1 above, and further in view of U.S. Patent No. 6,288,849 B1 to Teramoto ("Teramoto").

Claim Amendments

Claim 1 has been amended to more particularly point out and distinctly claim the invention. These changes do not introduce any new matter.

35 U.S.C. § 112 Rejection

The rejection of claims 1-9 under the second paragraph of 35 U.S.C. § 112 as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention, is respectfully traversed based on the following.

Claim 1 has been amended to address the informalities cited in the Office Action. Accordingly, it is respectfully requested that the rejection of claims 1-9 under the second paragraph of 35 U.S.C. § 112 as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention, be reconsidered and withdrawn.

35 U.S.C. § 103(a) Rejections

The rejection of claims 1, 4, and 6-9 under 35 U.S.C. § 103(a), as being unpatentable over Ikeuchi and Nishikawa in view of Parsons, is respectfully traversed based on the following.

Ikeuchi shows a process of forming a glass glob. Molten glass is contained in a crucible 1 and directed to nozzles 3a and 3b. As the glass drop 6a is formed at the tip of nozzle 3b, support member 10 is brought in the contact with the glass drop (Figure 4c) and lowered as the glass drop expands (5:20-29; 6:41-61). The bottom surface of support member 10b determines the shape of the lower surface of the glass glob. The Office Action states that:

> since the glass is press molded, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to expect the lower mold of Ikeuchi would have an opposing upper mold with similar optical function surface, since that is how press molding of optical elements occurs.

Applicants respectfully submit that this is not a reasonable inference from the Ikeuchi reference. The mold cited by the Office Action is called a "support member" in the reference. The reference goes on to state:

> The thus-obtained glass gob, after cooling solidification, may be press molded in a mold to achieve a desired top surface of the glass gob, or may be press molded prior to cooling solidification. (5:48-51)

Thus, "a mold" is indicated to be a distinct element from the "support member" by the use of distinct terms. In addition, the claims of Ikeuchi indicate that the press molding is a separate process. For example, claim 1 states in the preamble that the invention is "[a] glass gob production device, said glass gob being reformed into an optical element by press-molding." This strongly indicates that the formation of the glass glob, as shown in the embodiments of the Ikeuchi reference, is a separate step from the press molding step. Further, the complex processes described at 5:62-6:24 and illustrated in Figures 7a-7c used to control the contour of the top surface indicate that any molding is done after formation of the glass glob. In summary, one skilled in the art would not infer that the support member 10 would be used as the lower mold for press molding, but rather would infer that molding of the glass glob would occur in a separate mold.

Nishikawa shows that an optical element may be formed by dropping a micro glass molten droplet 8 onto a mold in a molten state (paragraph [0047]). There is no suggestion of any temperature parameters for this alternative step and no discussion of the nature of this mold; although two open type molds are shown in Figures 6 and 7. In the second embodiment, the flat mold 9 is heated to 400°C after the droplet was dropped onto the mold. It can only be presumed that the flat mold 9 was not heated prior to dropping the droplet 8.

Parsons shows heating glasslike carbon mold inserts 15 and 17 to a temperature of 530°C to 590°C, softening a cane 47 of optical crown glass to a temperature of 600°C to 700°C and pressing the mold inserts against the softened glass (col. 7, lines 6-25). As with Marechal, the glass and the mold are heated to a similar temperature.

In contrast to the cited references, claim 1 includes:

> a preparation step of preparing a lower mold having a lower mold surface for forming an optical function surface of an optical element to be

manufactured, an upper mold having an upper mold surface for forming another optical function surface of the optical element and an outer shape restricting surface for the optical element, said upper mold being opposed to the lower mold;

a reference surface formation step of forming a positioning reference surface on a rim of the optical element by heating the outer shape restricting surface and the lower mold surface and dropping molten glass onto the lower mold surface so as to collide with the lower mold surface and spread to be in contact with the outer shape restricting surface;

a pressing step of forming the two opposed optical function surfaces of the optical element by, after the formation of the reference surface, opposing the lower mold and the upper mold that is heated and bringing them relatively close to each other while the glass is still at a temperature at which it is deformable by pressing, and pressing the glass; and

an element taking out step of, after the pressing step, releasing the glass from the pressing by the upper and the lower molds and taking out the molded optical element,

wherein a temperature of the outer shape restricting surface in the reference surface formation step and the pressing step is higher than a temperature which is a difference when 100C is subtracted from a glass transition temperature (C) of the glass,

wherein all of the steps are performed while temperatures of the outer shape restricting surface, the lower mold surface and the upper mold surface are maintained at constant target temperatures, and

wherein the constant target temperatures of the outer shape restricting surface, the lower mold surface and the upper mold surface are lower than ~~that~~ of the dropping molten glass.

As noted above, the molten glass in Ikeuchi is not dropped, but rather the support member is brought up to the glass coming out of the nozzle. In addition, the sides of the support member in Ikeuchi are integral with the support member. Because the shape restricting surfaces are more exposed, their temperature is more difficult to control. This is not a problem in Ikeuchi because heat is transferred to support member from the nozzle via the molten glass. However, there is no suggestion of separately controlling the temperature of a restricting surface in any of the cited references because there is no separate restricting surface to control, and no need for such control in the configuration used.

In summary, the cited references do not show and would not have suggested to one skilled in the art "an upper mold having an upper mold surface for forming another optical

function surface of the optical element and an outer shape restricting surface for the optical element, said upper mold being opposed to the lower mold," wherein the "temperatures of the outer shape restricting surface, the lower mold surface and the upper mold surface are maintained at constant target temperatures." Furthermore, the cited references do not show nor would have suggested a "step of forming a positioning reference surface on a rim of the optical element by heating the outer shape restricting surface and the lower mold surface and dropping molten glass onto the lower mold surface so as to collide with the lower mold surface and spread to be in contact with the outer shape restricting surface" followed by press molding using the upper and lower molds." To support a *prima facie* case for patentability, the cited references, alone or in combination, must show or suggest every limitation of the claim. MPEP § 2143.03. Therefore, the cited references do not support a *prima facie* case of obviousness of claim 1 and claim 1 is patentably distinct from the prior art. Claims 4 and 6-9 are dependent upon claim 1 and thus include each of the limitations of claim 1. Therefore, the cited references do not support a *prima facie* case for the obviousness of claims 4 and 6-9 and claims 4 and 6-9 are patentably distinct from the prior art.

Accordingly, it is respectfully requested that the rejection of claims 1, 4, and 6-9 under 35 U.S.C. § 103(a) as being unpatentable over Ikeuchi and Nishikawa in view of Parsons, be reconsidered and withdrawn.

The rejection of claims 2 and 3 under 35 U.S.C. § 103(a), as being unpatentable over Ikeuchi and Nishikawa in view of Parsons, as applied to claim 1 above, and further in view of Shimizu et al., is respectfully traversed based on the following.

Shimizu shows an enclosed mold for a lens including a bottom 1, a top 2, and an outer ring comprised of two pieces 3L and 3R. The top and bottom of the mold are pressed to the desired thickness of the lens and the excess material is pressed into an annular space formed between the top mold 2 and the outer ring. Shimizu does not discuss the temperatures of either the glass or the mold, but appears to be designed to mold glass below the transition

temperature because the mold is an enclosed space and it is reasonable to assume that it would be noted if molten glass was used.

As noted above, Ikeuchi does not show or suggest dropping onto a mold that would be used in press molding. In addition, Shimizu shows an enclosed mold that would be incompatible with molding droplet. Also, claims 2 and 3 are dependent upon claim 1, and thus include the patentably distinct features of claim 1. Therefore, the cited references do not support a *prima facie* case for obviousness of claims 2 and 3 and claims 2 and 3 are patentably distinct from the prior art.

Accordingly, it is respectfully requested that the rejection of claims 2 and 3 under 35 U.S.C. § 103(a) as being unpatentable over Ikeuchi and Nishikawa in view of Parsons, as applied to claim 1 above, and further in view of Shimizu et al., be reconsidered and withdrawn.

The rejection of claim 5 under 35 U.S.C. § 103(a), as being unpatentable over Ikeuchi and Nishikawa in view of Parsons, as applied to claim 1 above, and further in view of Teramoto, is respectfully traversed based on the following.

Teramoto shows the formation of non-circular optical elements. However, Teramoto does not show or suggest the elements of claim 1 that are not shown or suggested by the references cited against claim 1. Claim 5 is dependent upon claim 1, and thus includes the patentably distinct features of claim 1. Therefore, the cited references do not support a *prima facie* case for obviousness of claim 5 and claim 5 is patentably distinct from the prior art.

Accordingly, it is respectfully requested that the rejection of claim 5 under 35 U.S.C. § 103(a) as being unpatentable over Ikeuchi and Nishikawa in view of Parsons, as applied to claim 1 above, and further in view of Teramoto, be reconsidered and withdrawn.

CONCLUSION

Wherefore, in view of the foregoing amendments and remarks, this application is considered to be in condition for allowance, and an early reconsideration and a Notice of Allowance are earnestly solicited.

This Amendment does not increase the number of independent claims, does not increase the total number of claims, and does not present any multiple dependency claims. Accordingly, no fee based on the number or type of claims is currently due. However, if a fee, other than the issue fee, is due, please charge this fee to Sidley Austin LLP Deposit Account No. 18-1260.

If an extension of time is required to enable this document to be timely filed and there is no separate Petition for Extension of Time filed herewith, this document is to be construed as also constituting a Petition for Extension of Time Under 37 C.F.R. § 1.136(a) for a period of time sufficient to enable this document to be timely filed.

Any other fee required for such Petition for Extension of Time and any other fee required by this document pursuant to 37 C.F.R. §§ 1.16 and 1.17, other than the issue fee,

and not submitted herewith should be charged to Sidley Austin LLP Deposit Account No. 18-1260. Any refund should be credited to the same account.

Respectfully submitted,

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